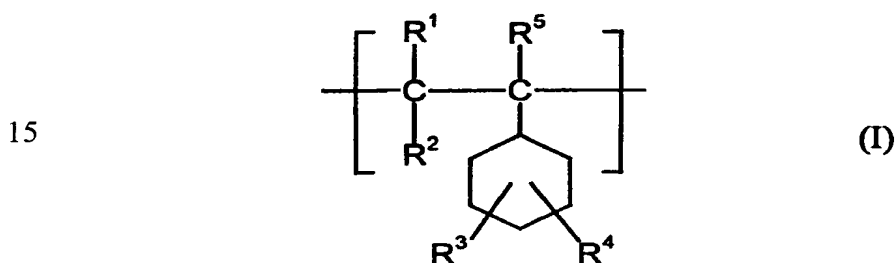


**Claims**

1. Polymers of vinylcyclohexane with an absolute molecular weight  $M_w$  from 100,000 to 450,000 g/mol or a mixture thereof with a low molecular weight component with an absolute molecular weight from 1000 to less than 100,000 g/mol, wherein the molecular weight distribution is characterised by a polydispersity index of 1 to 3 and the maximum melt viscosity is 1000 Pa.s, as measured at 300°C and at a shear rate of 1000 sec<sup>-1</sup>.
2. Polymers according to claim 1, containing, as a vinylcyclohexane-based polymer, a polymer comprising a recurring structural unit of formula (I)



wherein

$R^1$  and  $R^2$ , independently of each other, denote hydrogen or a C<sub>1</sub>-C<sub>6</sub> alkyl,

$R^3$  and  $R^4$ , independently of each other, denote hydrogen or a C<sub>1</sub>-C<sub>6</sub> alkyl, or jointly represent an alkylene,

$R^5$  represents hydrogen or a C<sub>1</sub>-C<sub>6</sub> alkyl,

and optionally containing at least one comonomer selected from the group consisting of olefines containing 2 to 10 C atoms, C<sub>1</sub>-C<sub>4</sub> alkyl esters of acrylic acid, C<sub>1</sub>-C<sub>4</sub> alkyl esters of methacrylic acid, unsaturated cycloaliphatic

hydrocarbons, tetracyclododecenes which are optionally substituted, divinylbenzene, vinyl esters, vinyl acids, vinyl ethers, vinyl acetates and vinyl cyanides.

- 5     3.     Polymers according to claims 1 or 2, characterised in that they exist as homopolymers, copolymers or block copolymers.
- 10     4.     Polymers according to claims 1 to 3, wherein in the case of mixtures comprising a low molecular weight component, the proportion of low molecular weight component with respect to the weight of the mixture of high and low molecular weight polymers amounts to up to 70 % by weight.
- 15     5.     Use of the polymers according to claims 1 to 4 for the production of mouldings and optical materials.
6.     Use of the polymers according to claims 1 to 4 for the production of optical data storage media.
- 20     7.     Mouldings obtainable from polymers according to claims 1 to 5.
8.     An optical substrate containing polymers according to claims 1 to 4.